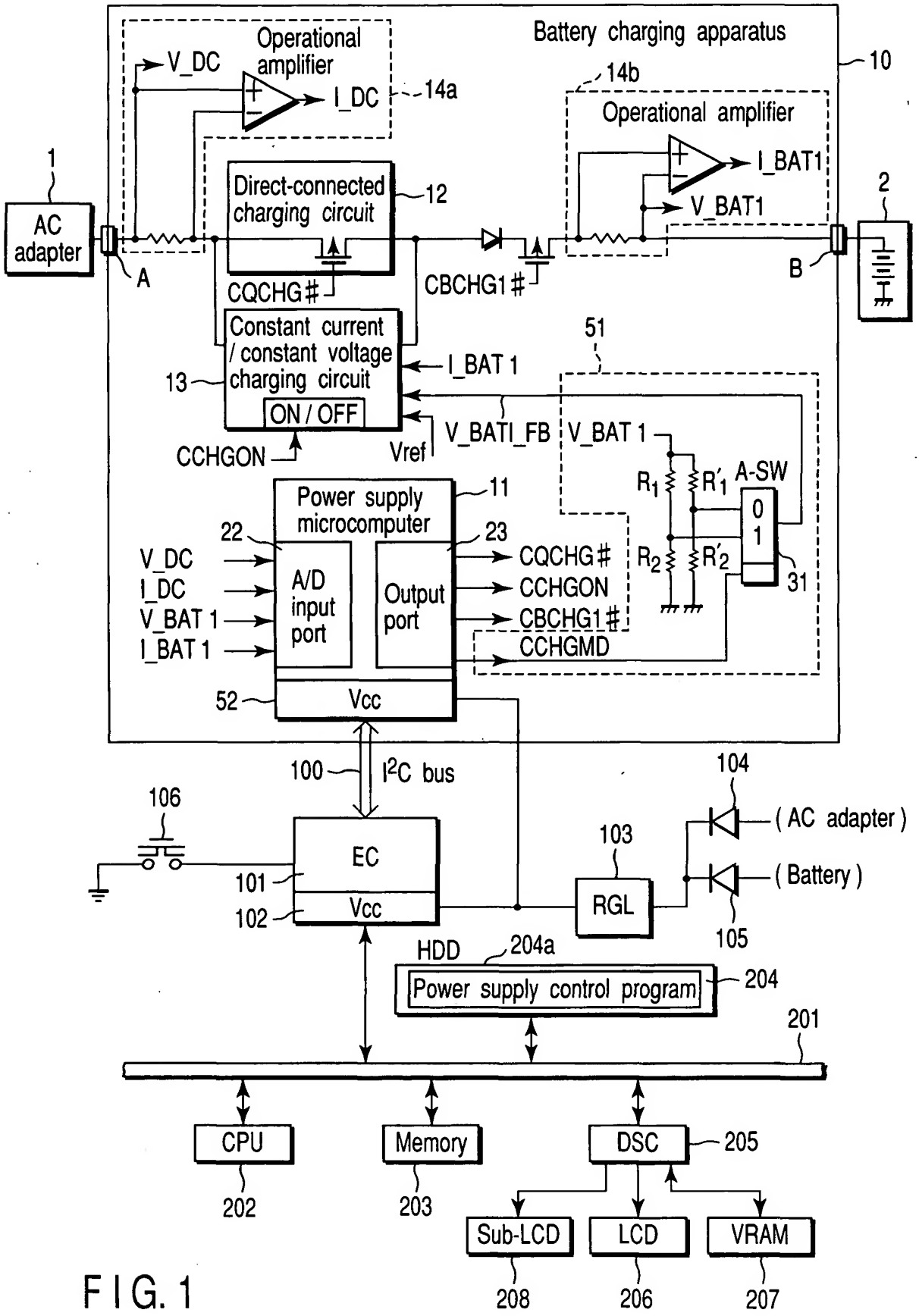
Battery charging apparatus
10
Operational amplifier
V_DC
I_DC
14a
14b
Operational amplifier
I_BAT1
V_BAT1
1
AC adapter
A
Direct-connected charging circuit
12
2
B
CQCHG#
CBCHG1#
Constant current / constant voltage charging circuit
13
I_BAT 1
ON / OFF
CCHGON
Vref
V_BATI_FB
51
V_BAT 1
R1
R'1
A-SW
R2
R'2
0
1
31
Power supply microcomputer
11
22
23
V_DC
I_DC
V_BAT 1
I_BAT 1
A/D input port
Output port
CQCHG#
CCHGON
CBCHG1#
CCHGMD
52
Vcc
100
I2C bus
104
(AC adapter)
106
EC
103
(Battery)
101
Vcc
102
RGL
105
HDD
204a
Power supply control program
204
201
CPU
Memory
DSC
205
202
203
Sub-LCD
LCD
VRAM
208
206
207

FIG. 1

Mode	CCHGMD	Input	Constant voltage	Relation between constant voltage and reference voltage Vref
0	0	V_BAT 1	V_0	$V_0 \times \frac{R_2'}{R_1'+R_2'} = Vref$
1	1		V_1	$V_1 \times \frac{R_2}{R_1+R_2} = Vref$

$(V_0 > V_1)$

FIG. 2

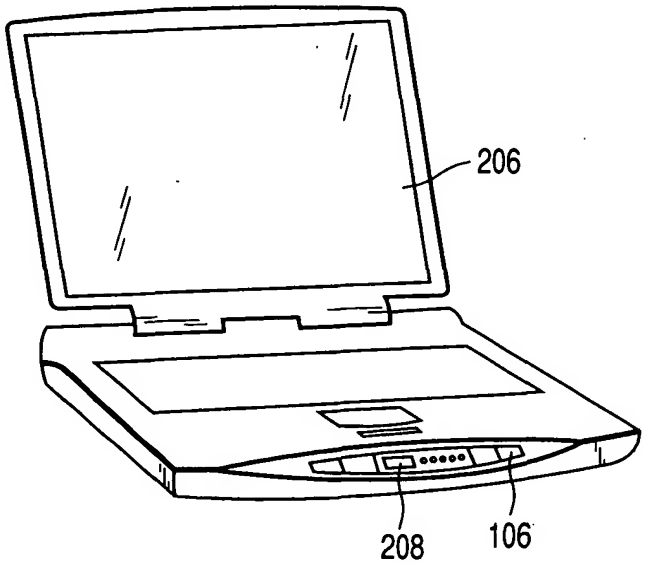

FIG. 3

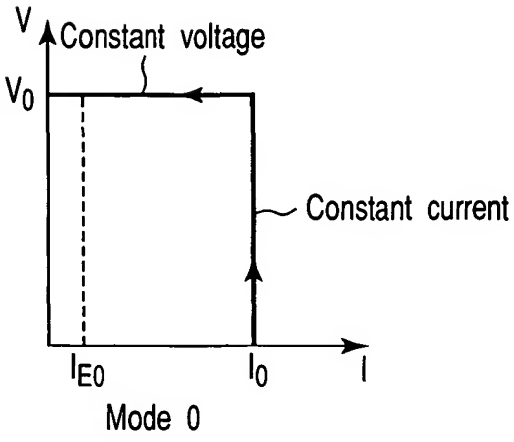

FIG. 4A

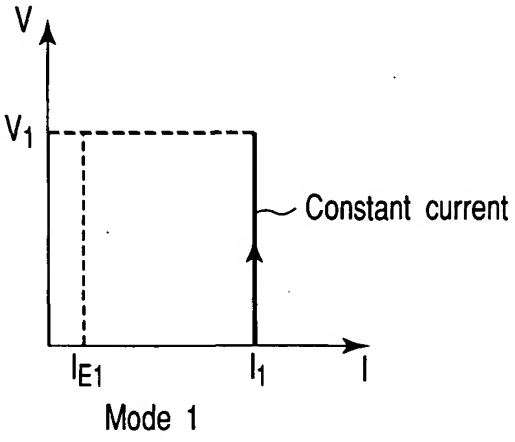

FIG. 4B

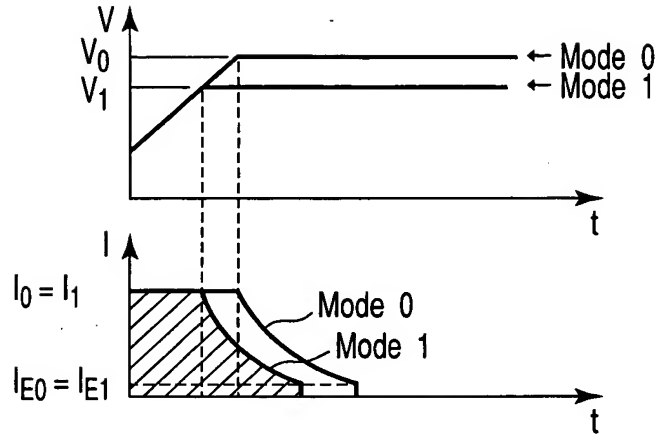

FIG. 5

FIG. 6

Full power	Residual : 115%	AC power supply : ON

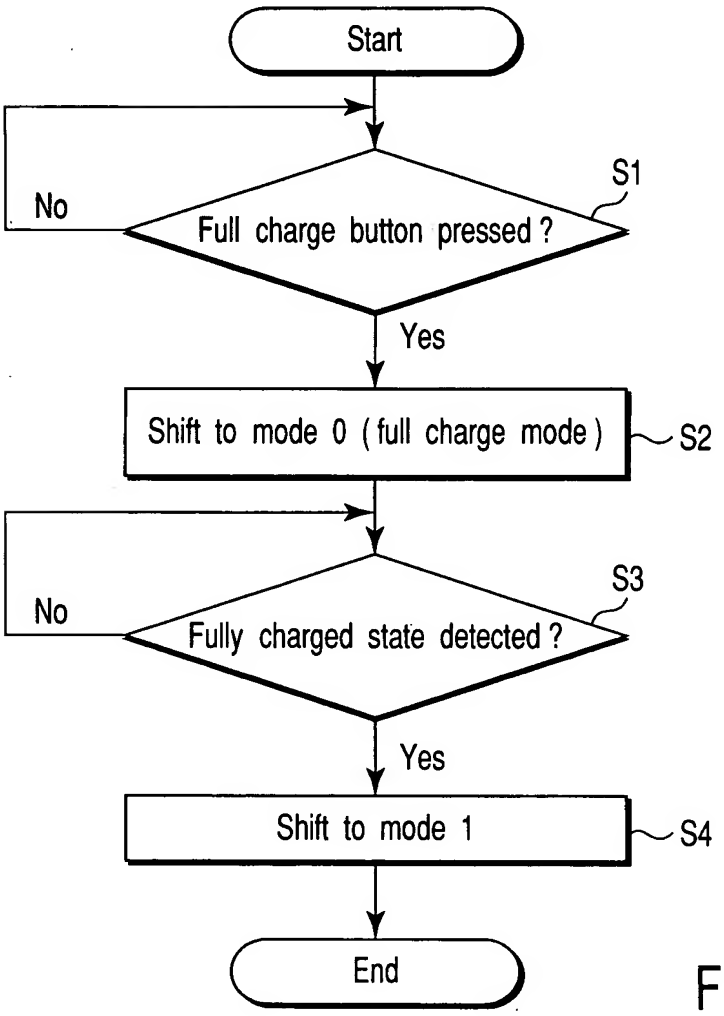

FIG. 7

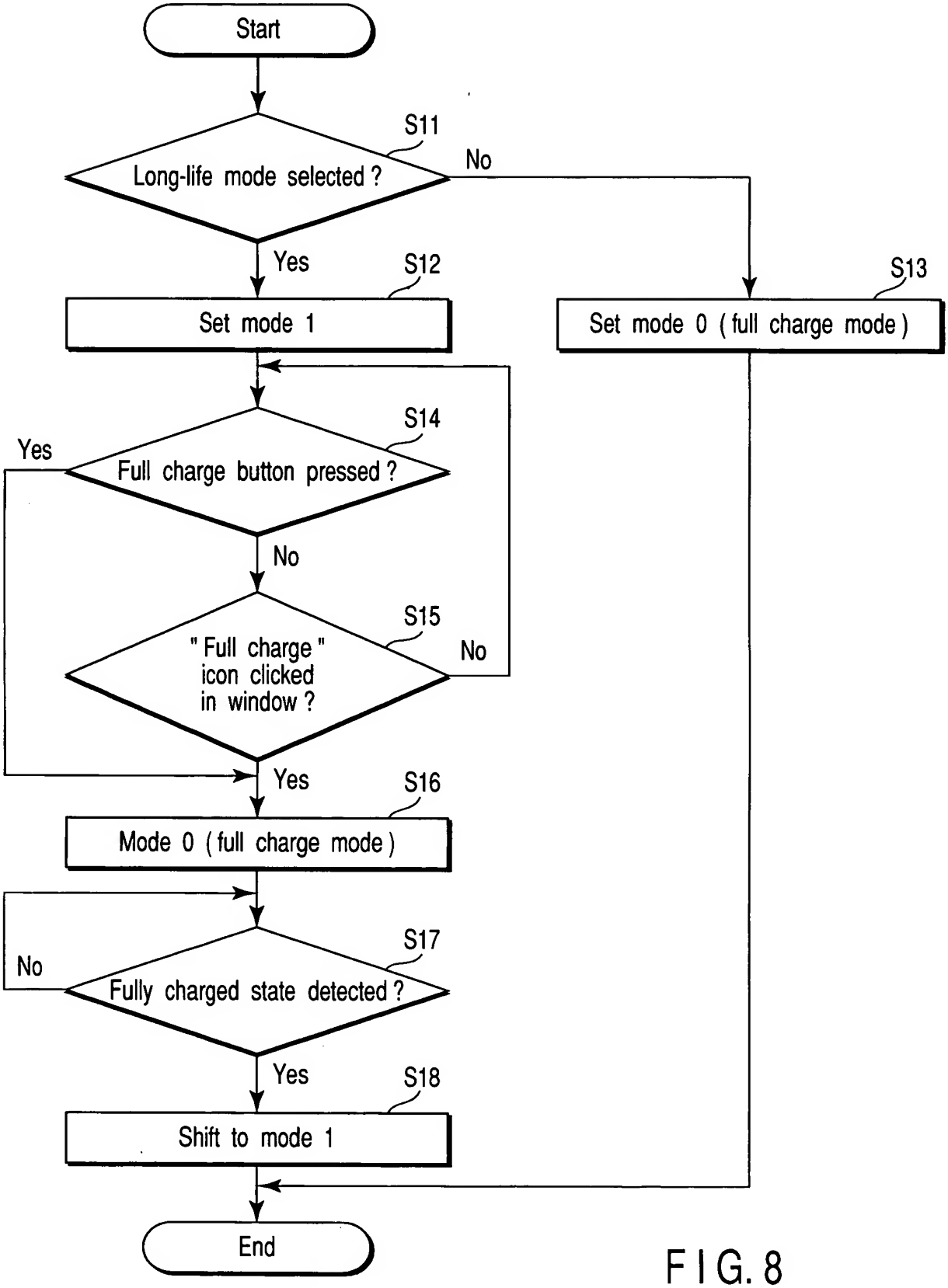
Start
S11
Long-life mode selected ?
No
Yes
S12
Set mode 1
S13
Set mode 0 (full charge mode)
S14
Yes
Full charge button pressed ?
No
S15
" Full charge "
icon clicked
in window ?
No
Yes
S16
Mode 0 (full charge mode)
S17
No
Fully charged state detected ?
Yes
S18
Shift to mode 1
End

FIG. 8

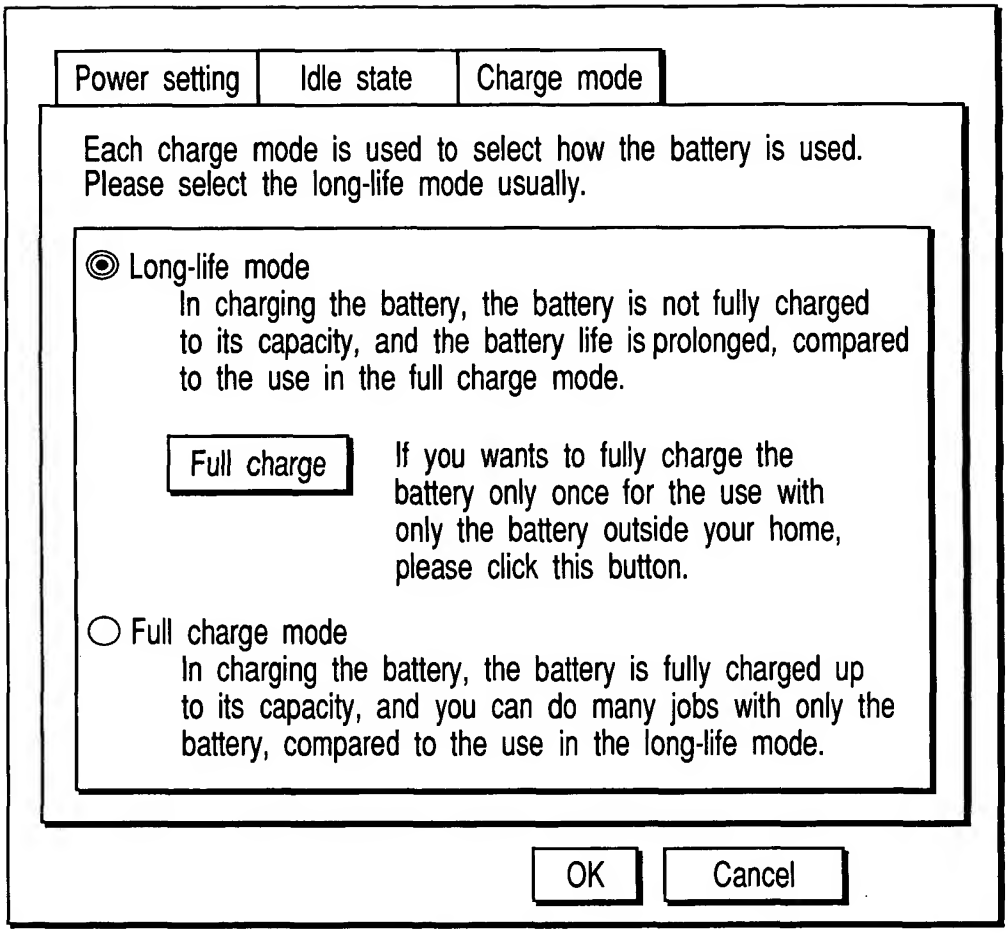
Power setting
Idle state
Charge mode
Each charge mode is used to select how the battery is used.
Please select the long-life mode usually.
Long-life mode
In charging the battery, the battery is not fully charged to its capacity, and the battery life is prolonged, compared to the use in the full charge mode.
Full charge
If you wants to fully charge the battery only once for the use with only the battery outside your home, please click this button.
Full charge mode
In charging the battery, the battery is fully charged up to its capacity, and you can do many jobs with only the battery, compared to the use in the long-life mode.
OK
Cancel

FIG. 9